

UX412 and UX402 Installation Guide

Verifone Part Number: DOC159-081-EN-A, Revision A02



www.verifone.com

UX412 and UX402 Installation Guide

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Preface

This guide is the primary source of information for setting up the UX412 and UX402 devices.

Audience

This guide is intended for the users involved in UX412 and UX402 installations.

Organization

This guide is organized as follows:

- Chapter 1, [Device Overview](#). Provides an overview of the UX412 and UX402 devices.
- Chapter 2, [Device Setup](#). Explains setup and installation of the devices, selecting a location, and establishing connections with other devices.
- Chapter 3, [Specifications](#). Discusses power requirements and dimensions of the UX412 and UX402 devices.
- Chapter 4, [Maintenance and Cleaning](#). Explains how to maintain your UX412 and UX402.
- Chapter 5, [Service and Support](#). Provides information on how to contact your local Verifone representative or service provider and information on how to order accessories or documentation from Verifone.
- Chapter 6, [Accessories and Cables](#). Provides the range of accessories and cables with corresponding part numbers.
- Chapter 7, [Pinouts](#). Shows the different pinout settings for ports on the UX412 and UX402.

Related Documentation

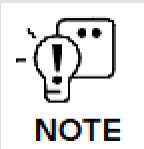
To learn more about the UX412 and UX402, refer to the following documents associated with the Verifone Part Numbers (VPNs).

UX412 and UX402 Quick Installation Guide	VPN	DOCXXX-XXX-EN
UX412 and UX402 Certifications and Regulations	VPN	DOCXXX-XXX-EN

Conventions

The following table describes the conventions.

Conventions

Convention	Meaning	Example
Blue	Text in blue indicates terms that are cross-referenced.	See Conventions .
 NOTE	The bulb icon is used to highlight important information.	If exchanging cables use a VeriFone-approved cable.
 CAUTION	The caution symbol indicates possible hardware or software failure or loss of data.	Avoid placing metallic objects at the front of the card reader.
 WARNING	The lightning symbol is used as a warning when bodily injury might occur.	For safety, do not string cables or cords across a walkway.

1. Device Overview

This chapter provides an overview of UX412 and UX402 devices.

VeriFone's UX412 is a Controller Unit pairing with UX402, an Antenna Unit. Together, they support transactions in a variety of environments, specifically outdoor and unattended markets.

Features and Benefits

The UX402 is VeriFone's contactless reader device. It creates an economical solution for merchants who are looking to expand their payment acceptance options. The contactless card reader allows a customer to quickly pay for items using their contactless card and tapping it near, or on the device, thus completing their transaction with speed and ease, without further input.

Ease of Use The following features simplify transactions in various environments:

- Designed for indoor and outdoor use.
- Various connectivity options are integrated into the device.
- The LEDs (Light Emitting Diode) on the UX402 indicate the progress of CTLS (Contactless) card reads.
- Buzzer for audio confirmation of card transactions.

Compliance

- PCI (Payment Card Industry) PTS (PIN Transaction Security) 6.x Approved
- EMV (Europay MasterCard and VISA), Level 1 and Level 2
- Compliance with all major card schemes

2. Device Setup

This chapter describes the setup for the UX412 controller and UX402 antenna, under the following sections:

- [Selecting the Unit Location](#)
- [Unpacking the Shipping Carton](#)
- [Examining the Features of the Unit](#)
- [Service Switch](#)
- [Cable Connections](#)
- [Mounting the Device](#)
- [Grounding the Unit](#)
- [Connecting the Power Supply](#)

Selecting the Unit Location

Use the following guidelines when selecting a location for your device.

- Select a location convenient for the customer.
- To minimize data reading or writing errors, pick a location free from magnetic interference.

Choosing the Mounting Location

Choose the Antenna Unit location near the Controlling unit for ease in setup and troubleshooting.



NOTE

The UX402 meets the Ingress Protection (IP65) standards for outdoor installation environments.

Unpacking the Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage.

Instructions for Unpacking the Shipping Carton

- 1 Remove the items from the shipping carton. The package contains:
 - UX412 Controller unit
 - UX402 Antenna unit
 - SMA (RF) coaxial cable to connect UX402 to UX412
 - RJ45 (Registered Jack) communications cable to connect UX402 to UX412
 - Clamping plate
- 2 Remove any protective wrap before mounting the unit.
- 3 Save the shipping carton and packing material for future repacking or moving of the device.

Do not use a unit that has been tampered with or otherwise damaged. This unit comes equipped with tamper-evident labels. If a label or component appears damaged, immediately notify the shipping company and your Verifone representative or service provider.



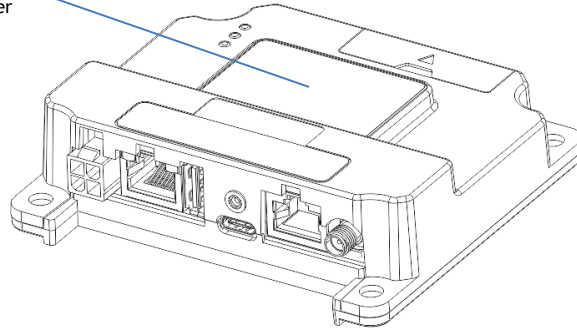
N'utilisez pas un appareil qui a été altéré ou autrement endommagé. Cet appareil est équipé d'étiquettes inviolables. Si une étiquette ou un composant semble endommagé, informez-en immédiatement la compagnie maritime et votre représentant ou fournisseur de services Verifone.

Examining the Features of the Unit

Before you continue the installation process, review the features of the UX412 and UX402.

Figure: 1 UX412
Controller
Connection
Ports

Model And
Serial Number



- USB (Universal Serial Bus) Device (Type C) [Host/Client]
- Powered USB (Type A) [Host]
- Power port 9V DC (Direct Current) to 43V DC
- LAN (Local Area Network) with 2 LEDs
- RJ45 socket to connect UX402 to UX412
- SMA (RF) coaxial connector to connect UX402 to UX412
- SAM Card compartment

Figure: 2 UX402
Antenna
Front View

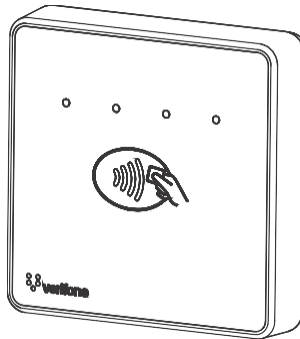
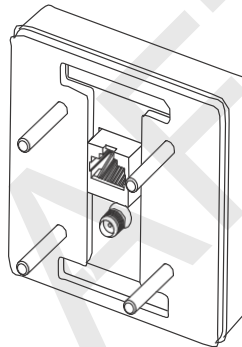
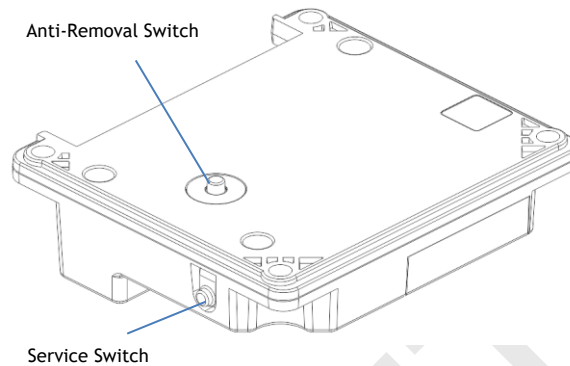


Figure: 3 UX402
AntennaRear
View



Service Switch There are two switches on the UX412: One Anti-Removal Switch (ARS) on the installation panel side and one Service Switch on the side of the Controller Unit.

Figure: 4 UX412
Service Switches



Activating System Mode The Service Switch gives access to System Mode. System mode is intended for administrators and authorized users only. Please contact your VeriFone representative for details.

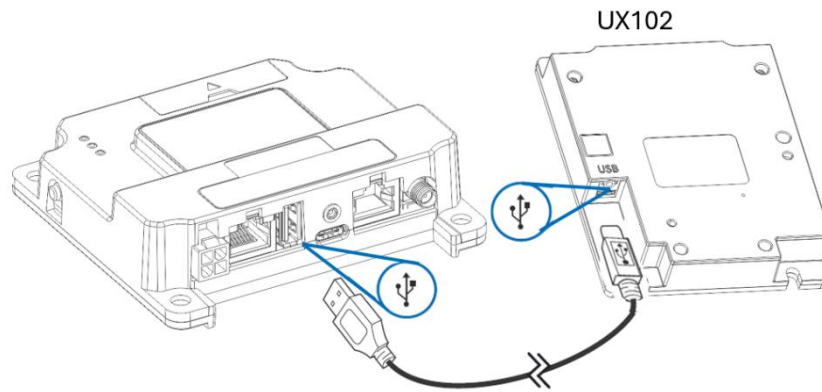
Cable Connections The connectors on the UX412 Controller are for power and external device connection. You can connect the UX412 to other devices using any of the following connection types:

- USB Type A
- USB Type C
- ETH (Ethernet) (LAN)

Connecting to a UX102 or UX112 PIN Pad

The UX412 can be connected to a UX102 or UX112 PIN Pad device with a VeriFone USB Type A to Type C cable.

Figure: 5 Connecting to a UX102 or UX112 PIN Pad



Connect the Type A plug to the UX412 USB port and connect the Type C plug to the USB port of the UX102. Use the same procedure for connecting the UX112 PIN Pad.

Connecting UX402 CTLS Antenna

UX412 is connected to a UX402 contactless unit using an RJ45 cable (VPN CBL159-314-01-B) and an SMA cable (VPN CBL159- 302-03-A).

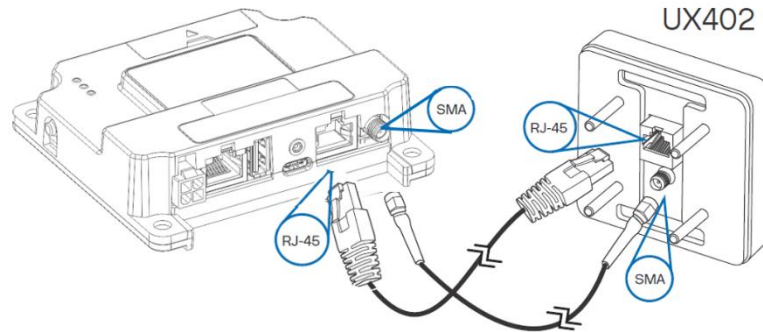
Before you continue the installation process, review the features of the UX402 (see [Figure 8](#) and [Figure 9](#)).

Connecting UX412 to UX402

- 1 Connect one end of the RJ45 connector to the UX412 and the other end to the UX402. Make sure both devices are not more than 0.5 m away from each other.

- 2 Connect one end of the SMA cable to the UX412 and the other end to the UX402 unit.

Figure: 6 Connecting UX412 to a UX402 CTLS Unit



- 3 Hold the cable and tighten the body.
- 4 SMA connector should be tightened by hand only.

Mounting the Device

Use the following procedure to mount the UX412 and UX402 to a suitable mounting surface.



Make sure that your mounting frame has a thickness of 2 mm.

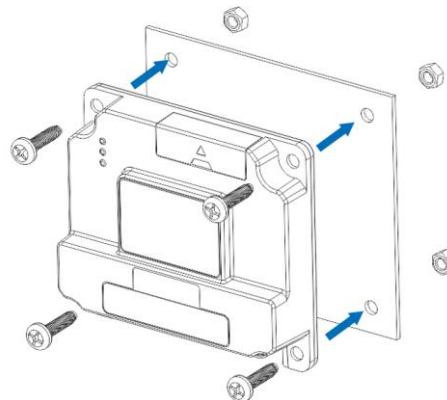
Assurez-vous que votre cadre de montage a une épaisseur de 2 mm.

Mounting the Controller Unit

This section shows how to attach the Controller Unit to the installation panel for stability and security.

Use the following steps to install the Controller Unit:

Figure: 7 Mounting the UX412



- 1 Align the Controller Unit mounting holes to the installation panel holes.
- 2 Insert four bolts and tighten the nuts using a recommended tightening torque of 5.0 kgf.cm (4.3 lbf.in).

Mounting the Antenna Module

The front view of the UX402 Antenna Unit shows the following. The customer-view indicator LEDs denote a successful transaction with an audible sound emitted from the module for approximately 2 seconds.

Figure: 8 UX402
Antenna
Front View

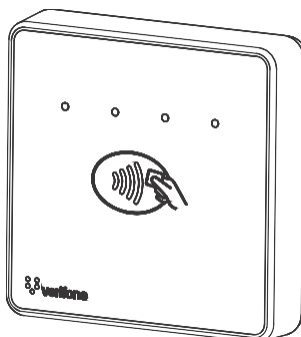
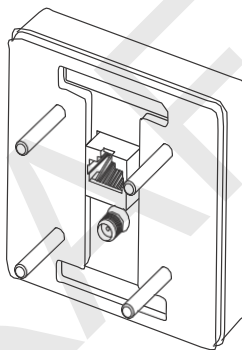
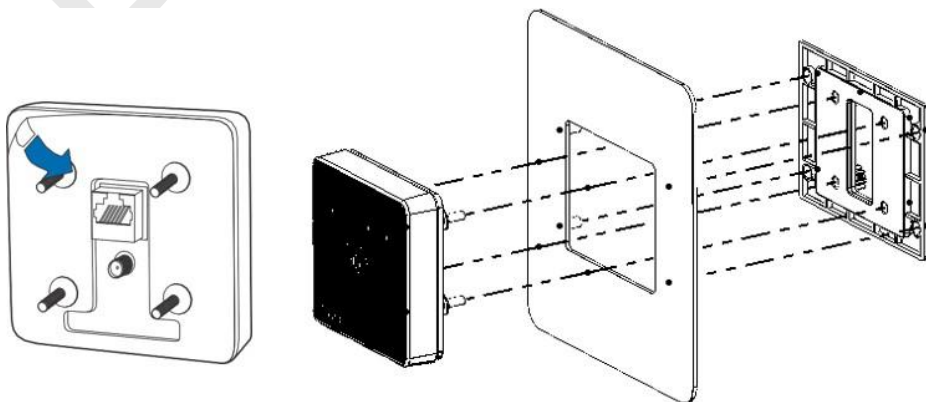


Figure: 9 UX402
AntennaRear
View



- Remove the clear protective film from the back of the unit.
- Align all the unit's stud bolts with the stud holes of the installation panel.

Figure: 10 Mounting a
UX402
Device



- UX402 can be affixed to a panel with a minimum thickness of 2 mm, either directly using the bolts located on the rear of the UX402 or indirectly by utilizing the provided clamping plate.
- Insert the bolts through the installation panel and then attach them to the EVA clamping plate (VPN PPL159-417-01-A).
- Secure the unit with M4 washers and nuts. Tighten the nuts using the recommended tightening torque of 5.0 kgf.cm (0.49 Nm or 4.3 lbf.in).

Installing or Replacing SAM Cards

You may need to install a security access module (SAM) card or replace the old card. You can find two SAM slots on the Controller Unit, located under a removable protective cover.



CAUTION

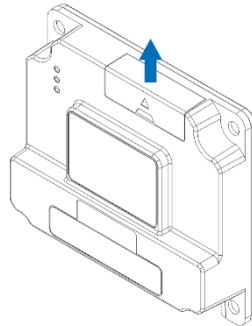
Observe standard precautions in handling electrostatically sensitive devices. Electrostatic discharges can damage the equipment. Verifone recommends using a grounded anti-static wrist strap.

Respectez les précautions standard lors de la manipulation d'appareils sensibles à l'électricité statique. Les décharges électrostatiques peuvent endommager l'équipement. Verifone recommande d'utiliser un bracelet antistatique relié à la terre.

To install or replace SAM cards

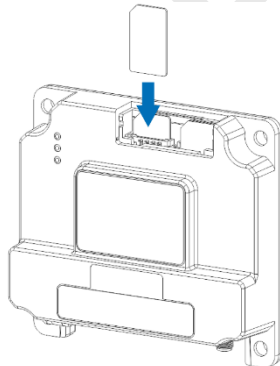
- 1 Disconnect the device from all power sources.
- 2 Disconnect the device from any external devices.
- 3 Slide the SAM cardholder cover down and swing away from the SAM compartment.

Figure: 11 Opening the SAM Cardholder



- 4 Carefully slide the SAM card into the slot, by aligning the card and carefully sliding into the slot until fully inserted.

Figure: 12 Inserting SAM Card



 Before inserting the SAM card, position it as shown in Figure 12, with the card's gold contacts facing inward. The SAM card has a notch on one corner to ensure that it fits into the connector base in only one way.

- 5 Close the SAM cardholder.

Connecting the Power Supply

UX412 is not supplied with a power supply, it requires the use of a power supply providing between 9V to 43V DC input.

If you have questions about which power supply to use, contact your VeriFone representative.



CAUTION

Using an incorrectly rated power supply can damage the unit or cause it to malfunction. See [Specifications](#) for power supply information.

L'utilisation d'une alimentation électrique mal évaluée peut endommager l'appareil ou provoquer un dysfonctionnement. Voir Spécifications pour plus d'informations sur l'alimentation électrique.

Attach and route all cables between the UX412 and all peripheral units before connecting to the power source.

Power Connections

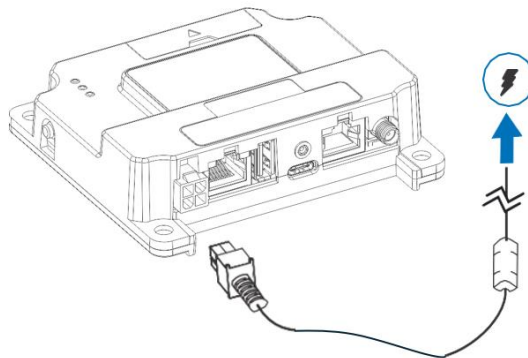
Connect the UX412 device to the power supply using a 4-pin cable. See [Figure 13](#).



NOTE

DC power cable length should not exceed 2.5 metres and capable of carrying a 3 W load.

Figure: 13 Power Connection for the UX412 Series



3. Specifications

This chapter discusses power requirements, dimensions, and other specifications of the UX412 and UX402 devices.

Unit Power Requirement

UX402 is powered by UX412. UX412 device have the following power requirements:

- Operating voltage: 9-43V DC
- Idle Power: <1 W
- Typical Power: <2 W (CTLS read), 0.5 W (UX102/112)



DC power cable length should not exceed 2.5 metres and capable of carrying a 3 W load.

Temperature

- Operating temperature: -30°C to 70°C (-22°F to 158°F)
- Storage temperature: -40°C to 80°C (-40°F to 176°F)

Humidity

- Relative humidity: 5% to 90% RH non-condensing



If this device is to be used in any environment where the temperature range exceeds the product's operating temperature, it is the responsibility of the integrators to ensure that the ambient environment is controlled in such a way as to ensure that the product operates within the specified temperature range.

External Dimensions

UX412

- Length: 92 mm (3.63 in)
- Width: 100 mm (3.94 in)
- Height: 27 mm (1.07 in)

UX402

- Length: 80 mm (3.14 in)
- Width: 80 mm (3.14 in)
- Depth: 42 mm (1.65 in)

Unit Weight **UX412** • 139 g (4.91 oz)

UX402 • 107 g (3.77 oz)

Processor • ARM (Advanced RISC Machine) Cortex A7 32-bit RISC | 650 MHz

Memory • 512 MB SDRAM (Synchronous Dynamic Random Access Memory)
 • Flash: 2GB

Peripheral Ports • Consistent ports:

- Power
- Powered USB Type A for UX PINpads (Host) 600mA maximum
- USB Type C (Client/Host)
- ETH (LAN) connection with 2 colored LEDs for link state and speed indication
- RJ45 socket to connect UX402 to UX412
- SMA (RF) coaxial connector to connect UX402 to UX412

4. Maintenance and Cleaning

General Care Your device exemplifies superior design and craftsmanship. The following recommendations are provided to help safeguard your warranty coverage:

- Avoid storing the device in hot areas, as elevated temperatures can diminish the lifespan of electronic components, harm batteries, and cause deformation or melting of certain plastics.
- Refrain from storing the device in cold areas, as the return to normal temperatures may lead to moisture formation inside the device, potentially damaging electronic circuit boards.
- Exercise caution to prevent dropping, knocking, or shaking the device, as rough handling can result in the breakage of internal circuit boards and delicate mechanics.

These recommendations are equally applicable to both your device and any accompanying attachments or accessories. If your device is experiencing operational issues, kindly visit the nearest VeriFone authorized service provider for maintenance or replacement.

Cleaning & Sanitizing Guidelines

VeriFone devices should only be gently cleaned to remove dirt, residue, or debris using a lightly water-damped, clean microfiber cloth. One or two drops of pH-neutral, non-scrubbing soap may be used. Do not use solvents, harsh detergents, or abrasive cleaners.

Using improper cleaning methods or products may result in functional and/or cosmetic issues that are not covered under warranty.

Important Guidelines:

- 1 **Avoid Direct Application:** Never spray, coat, or pour any liquid, sanitizer, or disinfectant directly onto the device.
- 2 **Caution Against Harsh Chemicals:** Avoid using bleach, hydrogen peroxide, thinner, trichloroethylene, or ketone-based solvents, as they can degrade plastic and rubber components.
- 3 **Electrostatic Discharge (ESD) Prevention:** Exercise caution to prevent ESD by refraining from vigorously rubbing with a dry towel or similar actions, as they can cause ESD and trigger a tamper alert.



Cleaning Instructions

- 1 Turn off your device.
- 2 Disconnect it from the power source.
- 3 Clean it following the instructions and guidelines as mentioned above. Once completely dry, reconnect to power up.

5. Service and Support

The UX412 or UX402 devices does not contain user-serviceable parts. Unless expressly directed, refrain from attempting any service, adjustments, or repairs on the unit under any circumstance.

For product service and repair information:

- USA - Verifone Service and Support Group, 1-800-837-4366
Monday - Friday, 8 A.M. - 8 P.M., Eastern time
- International - Contact your Verifone representative

Returning a Device for Service

You must obtain a Merchandise Return Authorization (MRA) number before returning the terminal to Verifone. The following procedure describes how to return one or more terminals for repair or replacement (U.S. customers only).



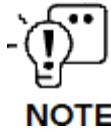
CAUTION

Customers outside the United States are advised to contact their local Verifone representative for assistance regarding service, return, or replacement of devices and accessories.

Il est conseillé aux clients en dehors des États-Unis de contacter leur Verifone local représentant pour obtenir de l'aide concernant l'entretien, le retour ou le remplacement des appareils Et accessoires.

- 1 Get the following information from the printed labels on the back of each UX412 and UX402 devices to be returned:
 - Product ID, including the model and part number. For example, “UX412” and “M159-412-XX-WWA-6” and “PTID xxxxxxxx”
 - Serial number (S/N nnn-xxx-xxx)
- 2 Obtain the MRA number(s) by completing one of the following:
 - Call Verifone toll-free within the United States at 1-800-Verifone and follow the automated menu options.
 - Select the MRA option from the automated message. The MRA department is open Monday to Friday, 8 A.M. to 8 P.M., Eastern Time.
 - Give the MRA representative the information you gathered in [Step 1](#).
 - Complete the Inquiry Contact Form at <https://www.verifone.com/en/us/contact-us>.
 - Address the Subject box to “Verifone MRA Dept.”

- Reference the model and part number in the Note box.



Each UX412 and UX402 returned to Verifone requires a distinct MRA number to be issued. Even if you are returning multiple terminals of the same model, ensure that a separate MRA number is issued for each unit.

- 3 Describe the problem(s).
- 4 Provide the shipping address where the repaired or replacement unit must be returned.
- 5 Keep a record of the following items:
 - Detail the issue(s) with the UX412 and UX402 devices.
 - Furnish the shipping address for the return of the repaired or replacement unit.
 - Maintain a record of the following elements:
 - Assigned MRA number(s).
 - Verifone serial number linked to the UX412 and UX402 devices being sent for service or repair (located on the back of the unit).
 - Shipping documentation, including air bill numbers utilized for shipment tracking.
 - Model(s) returned (model numbers can be found on the Verifone label on the back of the UX412 and UX402 devices).

6. Accessories and Cables

Verifone provides a range of accessories for the UX412 and UX402 devices. When placing orders, it is essential to reference the specific part numbers. Here are the available channels for ordering: Verifone online store:

- Verifone - [Contact us](#)
- USA - Verifone Customer Development Center, 1-800-837-4366
Monday - Friday, 7 A.M. - 8 P.M., Eastern time
- International - Contact your Verifone representative

Connecting Cables

Cable	Description
CBL159-314-01-B	RJ45 socket to connect UX402 to UX412
CBL159-302-03-A	SMA (RF) coaxial connector to connect UX402 to UX412
CBL159-312-01-B	LAN cable for Ethernet connections
5557-04R	4-pin Molex-Mini Fit



NOTE

5557-04R requires 5556 series pins.

Grounding Cables

Part	Description
WIR159-302-01-A	1 m grounding cable for UX412 and UX1xx PIN Pads
WIR159-302-02-A	2.5 m grounding cable for UX412 and UX1xx PIN Pads

Verifone Cleaning Kit

02746

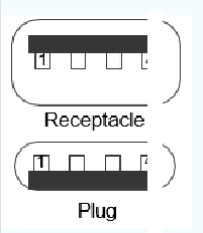
Power Pack

PWR-159-002-01-X

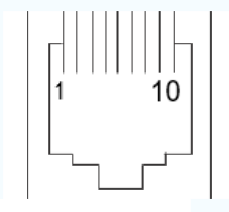
7. Pinouts

Port Pinouts This section contains port pinout tables for UX412 and UX402.

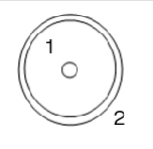
USB A

Connector	PIN	Function	Description
	1	+5 V	5 V USB Power (500 mA)
	2	DATA-	USB Host Signal -
	3	DATA+	USB Host Signal +
	4	GND	USB ID pin/Ground

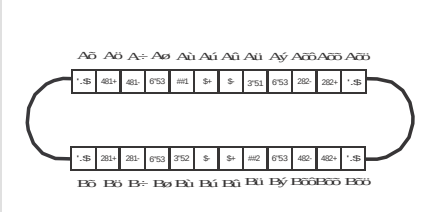
RJ45 CTLS (UX412 to UX402)

Connector	PIN	Function	Description
	1	Buzzer	PWM
	2	5V0	Power
	3	3V3	Power
	4	0V	GND
	5	Proximity	User detect wake
	6	SDA	CTLS
	7	SCL	CTLS
	8	SCL	Proximity
	9	SDA	Proximity
	10	0V	GND

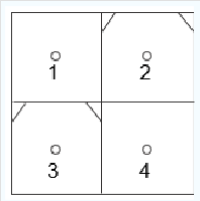
SMA RF CTLS Antenna

Connector	PIN	Function
	1	Signal
	2	0V

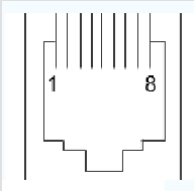
USB C

Connector	PIN	Description	PIN	Description
	A1	GND	B12	GND
	A2	TX1+	B11	RX1+
	A3	TX1-	B10	RX1-
	A4	VBUS	B9	VBUS
	A5	CC1	B8	SBU2
	A6	D+	B7	D-
	A7	D-	B6	D+
	A8	SBU1	B5	CC2
	A9	VBUS	B4	VBUS
	A10	RX2-	B3	TX2-
	A11	RX2+	B2	TX2+
	A12	GND	B1	GND

Power Port

Connector	PIN	Function	Description
	1	9 V to 43 V	External power from cable
	2	GND	Power ground
	3	Wake_MDB_Module	Low active wake-up signal
	4	NC	No connection

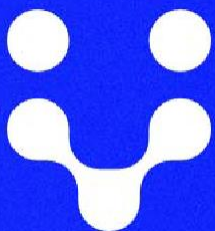
Ethernet Port (LAN)

Connector	PIN	Function	Description
	1	TXD+	Transmit data +
	2	TXD-	Transmit data -
	3	RXD+	Receive data +
	4	75 Ohms	AC coupled to GND
	5	75 Ohms	AC coupled to GND
	6	RXD-	Receive data -
	7	75 Ohms	AC coupled to GND
	8	75 Ohms	AC coupled to GND

Verifone
2744N University Drive
Coral Springs,
FL 33065, USA



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Thank you!

We are the payments architects who truly understand commerce.

As payment architects we shape ecosystems for online and in-person commerce experiences, including all the tools you need... from gateways and acquiring to fraud management, tokenization and reporting.

As commerce experts, we are here for you and your business. With our payment devices, our systems & solutions and our support. Everywhere. Anytime. So that your customers feel enabled, recognized and well taken care of, even beyond their expectations.

Verifone. Creating omni-commerce solutions that simply shape powerful customer experiences.